

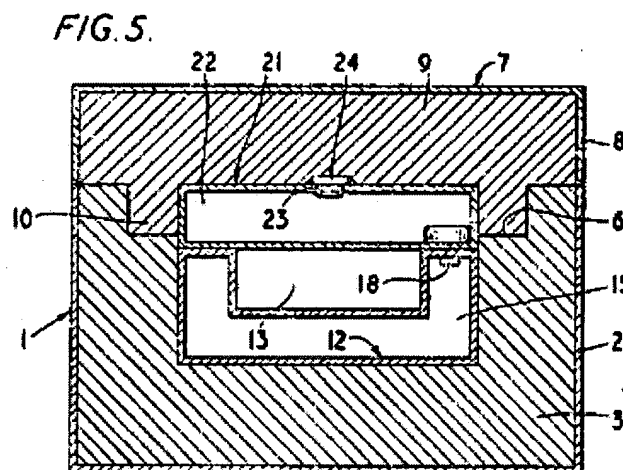
### Improvements relating to thermally-insulated cases

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## Abstract of GB1004791

1,004,791. Cold and heat retaining vessels. SALTERPAK Ltd. July 24, 1964 [June 19, 1963], No. 24303/63. Heading F4U. A thermally-insulated case suitable for the transport and storage of vaccines and other material which has to be maintained at a low temperature comprises an outer container 1 composed of an outer shell 2, 8 which may be made of a glass fibre reinforced plastic material, and a thermally-insulating lining or packing 3, 9, which may be made of an expanded plastics material such as expanded polystyrene, within which nests a removable inner container 12, 21, said inner container being itself composed of a thermally-insulating material, such as glass fibre reinforced plastic, and being formed with an inner storage compartment 13 for housing the material to be packaged, and having hollow walls 15, 22 which can be filled with water or other coolant liquid on removal of plugs 18, 24 and completely enclose the storage compartment 13. The outer container may be made in two separable parts 1, 7, the thermally insulating lining or packing completely filling the interior space when the said two parts are assembled except for a central internal cavity which accommodates the inner container.



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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements relating to Thermally-Insulated Cases

5 We, SALTERPAK LIMITED, a British Company, of Shelah Road, Haysech, Halesowen, Birmingham, formerly of Spring Road, Smethwick, Staffordshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to thermally-insulated cases and in particular, it is concerned with a case suitable for the transport and storage of material which has to be maintained at a low temperature, especially around the freezing point of water, such as vaccine preparations for example.

15 According to the invention, a thermally-insulated case suitable for the transport and storage of material which has to be maintained at a low temperature comprises an outer container composed of an outer shell and a thermally-insulating lining or interior packing within which nests a removable inner container, said inner container being itself composed of a thermally-insulating material and being formed with an inner storage compartment, for housing the material to be packaged, and with hollow walls which can be filled with water or other coolant liquid and completely enclose the storage compartment to provide a temperature control jacket. A particularly suitable material for the inner container and for the shell of the outer container is a glass fibre reinforced plastic, and the thermally-insulating lining of the latter is preferably composed of expanded polystyrene.

20 Both the outer and inner containers may have a two-part construction with separate lids and body parts.

25 By way of example, one convenient embodiment of the invention will be described in

relation to a thermally-insulated case which is especially intended for transport and storage of vaccine preparations which require to be maintained at a low temperature. 45

In this embodiment, the thermally-insulated case comprises an outer box-like container within which is nested a smaller, inner box-like container designed actually to house the vaccine preparation. Both the outer and inner containers have a generally rectangular form and each comprises a body part and a separate complementary lid part which is removable to give access to the interior. 50 55

In the accompanying drawings,

Figure 1 is a perspective view of the body part of the outer container with the lid and inner container removed;

Figure 2 is a perspective view showing the underside of the lid of the outer container; 60

Figure 3 is an exploded perspective view of the inner container;

Figure 4 is a perspective view showing the underside of the lid of the inner container; 65

Figure 5 is a longitudinal vertical section through the assembled case; and

Figure 6 is a transverse vertical section on line VI—VI of Figure 5.

Referring to the drawings, the body part 1 of the outer container is made up of an outer rigid shell 2 of moulded glass fibre reinforced plastics material, such as glass fibre reinforced polyester resin, which itself has thermal insulation properties, and a relatively thick lining 3 of expanded polystyrene thermal insulation material. 70 75

The polystyrene lining 3 of the body part 1 of the outer container is conveniently formed as a one-piece block having a central cavity 5, open at the top, in which the inner container fits closely, and the upper surface of the lining block is rebated to provide a ledge 80

[Price

6 extending around the open top of the central cavity.

The lid part 7 of the outer container, which is designed to fit over the body part 1, has an outer rigid shell 8 made up of a similar moulded glass fibre reinforced plastics material, and a polystyrene lining in the form of a rectangular block or slab 9 carrying on its underface a continuous rectangular projecting rib 10 which is adapted to seat upon the ledge 6 of the body part 1 and locate the lid in position.

The inner container, which is designed to house the vaccine material to be stored, is also composed of a thermally-insulating, moulded glass fibre reinforced plastics material similar to that of the outer shell 2 of the outer container, and the body part 12 is in the form of a generally rectangular block having a central trough-like storage compartment 13 surrounded by walls having a hollow interior 15 which can be filled with water or other liquid to provide a coolant jacket. This body part 12 of the inner container may, in fact, be regarded as being formed by a hollow rectangular block of glass fibre reinforced plastics material in which a central portion of the top surface is depressed or made re-entrant into the hollow interior to provide the trough-like storage compartment 13.

Access to the hollow interior 15 of the walls for introducing the liquid coolant is given by two spaced apertures 16 in the flat upper surface 17 of the body part 12, these apertures 16 normally being closed by tapered rubber plugs 18 of which the larger, headed ends project upwardly, when in position, and fit into locating sockets 20 in the underside of the lid part 21.

The lid part 21 of the inner container is in the form of a shallow rectangular block which also has a hollow construction providing an interior space 22 adapted to be filled with water or other coolant liquid, a filling aperture 23 closable by a rubber plug 24 being provided in the upper surface. The underside of this lid part has a flat surface in which are formed the locating sockets 20 referred to above, and fits over the upper surface 17 of the body part 12 so that when it is in position, the storage compartment 13 of the latter is completely enclosed by coolant jackets.

In use, after filling the coolant jackets with water or other liquid, the inner container may be placed in a refrigerator to lower the temperature. The vaccine preparation is then introduced into the storage compartment 13 and, with the lid 21 in position, the inner container can then be placed within the cavity

5 of the outer container. On replacing the lid 7 of the latter, the vaccine preparation will then remain at a low temperature, as required, for a considerable time on account of the coolant jacketing and excellent thermal insulation provided, this being of particular value when vaccine preparations have to be transported or used in circumstances where refrigeration facilities are not continuously available.

It will be understood, of course, that thermally-insulated cases of the present invention may also be particularly useful for transporting and storing materials other than vaccine preparations where temperature considerations are important.

#### WHAT WE CLAIM IS:—

1. A thermally-insulated case suitable for the transport and storage of material which has to be maintained at a low temperature comprising an outer container composed of an outer shell and a thermally-insulating lining or interior packing within which nests a removable inner container, said inner container being itself composed of a thermally-insulating material and being formed with an inner storage compartment, for housing the material to be packaged, and with hollow walls which can be filled with water or other coolant liquid and completely enclose the storage compartment to provide a temperature control jacket.

2. A thermally-insulated case, as claimed in claim 1, in which the outer shell of the outer container is composed of a glass fibre reinforced plastics material and the thermally-insulating lining or interior packing thereof is composed of an expanded plastics material such as expanded polystyrene.

3. A thermally-insulated case, as claimed in claim 1 or 2, in which the inner container is formed from a glass fibre reinforced plastics material.

4. A thermally insulated case, as claimed in any of the preceding claims, in which the outer container is formed in two separable parts, the thermally-insulating lining or interior packing thereof completely filling the interior space when the said two parts are assembled except for a central internal cavity which accommodates the inner container in close-fitting relationship.

5. A thermally insulated case substantially as herein described with reference to the accompanying drawings.

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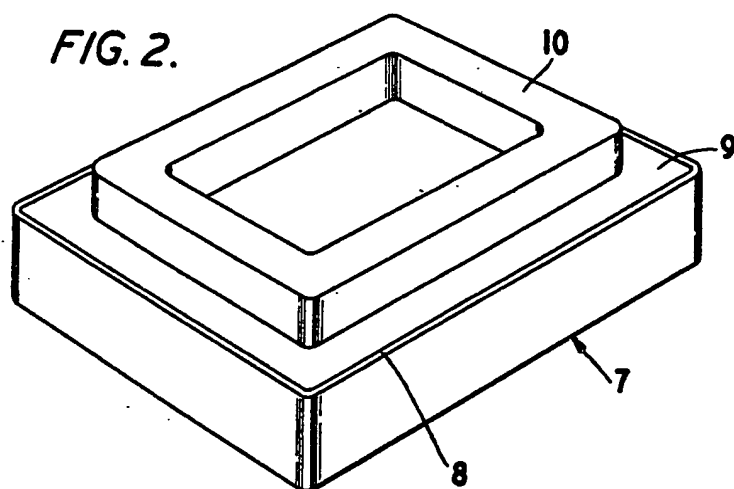
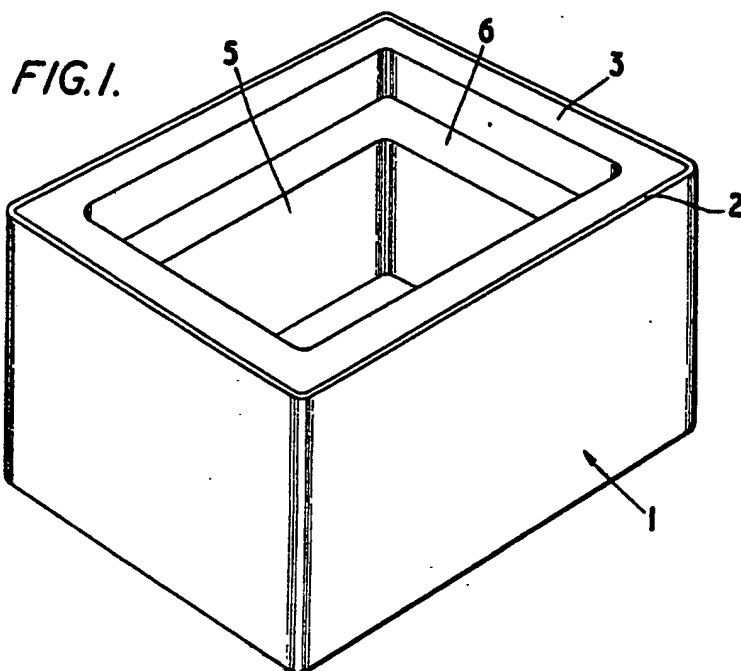
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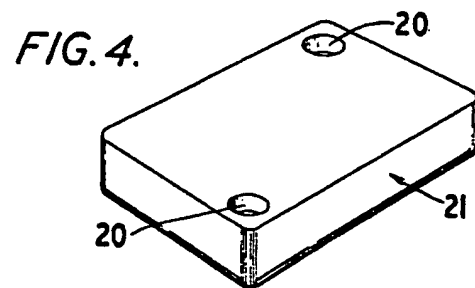
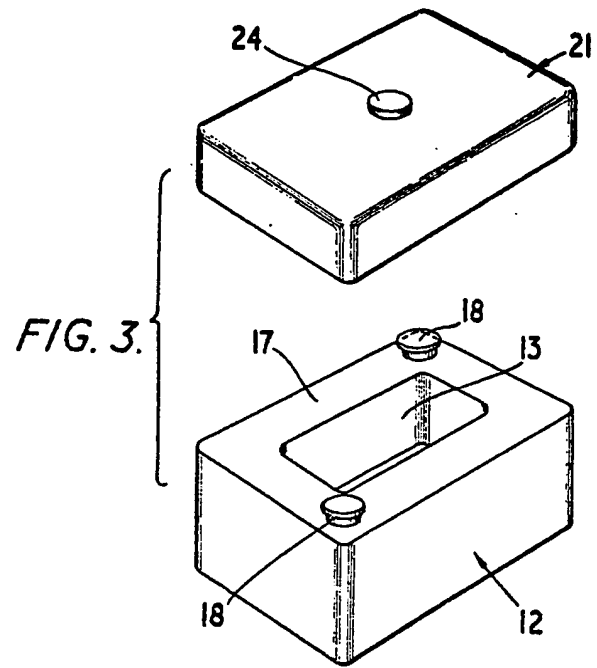
COMPLETE SPECIFICATION

3 SHEETS

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Sheet 1





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Sheets 2 & 3

FIG. 5.

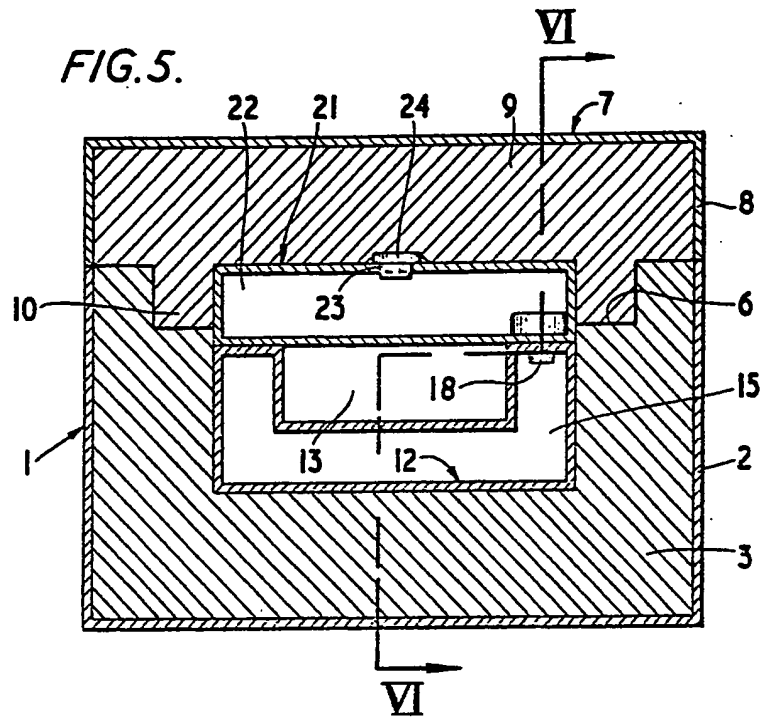


FIG. 6.

